



**National Aeronautics
and Space Administration**

**January 31, 2000
NRA 00-OSS-02**

RESEARCH ANNOUNCEMENT

**OFFICE OF SPACE SCIENCE
OFFICE OF EQUAL OPPORTUNITY PROGRAMS
MINORITY UNIVERSITY
EDUCATION AND RESEARCH PARTNERSHIP
INITIATIVE IN SPACE SCIENCE – 2000**

Notice of Intent Due:
Proposals Due:

**March 31, 2000
May 10, 2000**

**OFFICE OF SPACE SCIENCE
OFFICE OF EQUAL OPPORTUNITY PROGRAMS
MINORITY UNIVERSITY
EDUCATION AND RESEARCH PARTNERSHIP
INITIATIVE IN SPACE SCIENCE – 2000**

NASA Research Announcement
Soliciting Space Science Education and Research Proposals
Submitted On Or Before
May 10, 2000

NRA 00-OSS-02

Release Date: January 31, 2000
Notice of Intent: March 31, 2000
Proposal Submission Deadline: May 10, 2000

Office of Space Science and Office of Equal Opportunity Programs
National Aeronautics and Space Administration
Washington, DC 20546-0001

**OFFICE OF SPACE SCIENCE
OFFICE OF EQUAL OPPORTUNITY PROGRAMS
MINORITY UNIVERSITY
EDUCATION AND RESEARCH PARTNERSHIP
INITIATIVE IN SPACE SCIENCE – 2000**

NASA's Office of Space Science (OSS) and the Office of Equal Opportunity Programs (OEOP) jointly announce an opportunity for minority colleges and universities to propose programs in education and research directed towards the following near-term goals:

- The development of space science-related academic capabilities at minority colleges and universities, and, working through those institutions, the development of space science-related education programs and materials aimed at many levels in the education system; and
- The enhancement/development of faculty and students in space science-related fields at minority colleges and universities through the establishment of partnerships and exchange programs in research and education with NASA-supported space science research groups at colleges and universities, NASA Centers, other Federal laboratories, and industrial organizations throughout the country.

The long-term, underlying goals of this Initiative are to enhance minority college (2-year and 4-year) and university participation in space science through a variety of mechanisms, and, more generally, increase the understanding of science, technology, and the role of research in contemporary society by a broad and diverse segment of the American population. A key element of the strategy for accomplishing these goals is to facilitate and foster the development of links between the NASA Office of Space Science, the space science research community, and minority institutions through the establishment of exchange programs and long-term partnerships.

The Space Science Enterprise is one of NASA's four Strategic Enterprises. Detailed information about the other NASA Enterprises may be obtained through the NASA homepage on the World Wide Web at URL <<http://www.nasa.gov>>. NASA's Space Science Enterprise is responsible for all of NASA's programs relating to astronomy, the exploration of solar system, and the study of the Sun and its interaction with Earth. The subject matter of its research covers everything from understanding the processes occurring in the middle levels of Earth's atmosphere (about 60 kilometers up) to exploring the farthest observable reaches of the universe billions of light years away.

As discussed in the Space Science Enterprise Strategic Plan, the mission of the Space Science Enterprise is to solve the mysteries of the universe, to explore the solar system, to discover planets around other stars, and to search for life beyond Earth. To carry out this mission, NASA's Office of Space Science (OSS) sponsors a broad range of research programs relevant to four science themes, which are defined as:

1. *Astronomical Search for Origins and Planetary Systems* (ASO) that addresses the origins of galaxies, stars, proto-planetary and extra-solar planetary systems, Earth-like planets, and the origin of life;
2. *Solar System Exploration* (ESS), which seeks to understand all aspects of our Solar System, including the planets, satellites, small bodies, and solar system materials, as well as searching for possible habitats of life beyond Earth;
3. *Structure and Evolution of the Universe* (SEU), which involves the study of cosmology, the large scale structure of the universe, and the evolution of stars and galaxies, including the Milky Way and objects with extreme physical conditions; and
4. *The Sun-Earth Connection* (SEC) that concerns the Sun itself as a typical star and as the controlling agent of the space environment of the Solar System, especially the Earth.

Further information about these themes, OSS flight missions, and OSS research programs may be found through links from the OSS homepage on the World Wide Web at URL <<http://spacescience.nasa.gov>>. This link may also be used to obtain information on the types of research currently being sponsored/solicited by OSS. Such information can be found by consulting past and current NASA OSS Research Announcements that may be accessed through the menu on the OSS homepage.

Particular attention should be paid to the Space Science Enterprise Strategic Plan that may be accessed through the OSS homepage. This Strategic Plan contains important information on the overall content and future direction of the OSS program. It is strongly recommended that this Plan be read carefully by prospective proposers. Institutions interested in responding to this NRA will be required to demonstrate a direct intellectual and/or programmatic linkage between their proposed education or research program and the current scientific content or future direction of the Space Science Enterprise. Proposals that do not explicitly demonstrate such a linkage will not be considered for funding.

Appendix A contains a more detailed description of the OSS/OEOP Minority University Education and Research Partnership Initiative in Space Science. While this Appendix provides some illustrative examples of the types of programs that might be proposed in response to this NRA, the intent of this Appendix is not to provide an exhaustive or exclusive menu of possibilities. OSS/OEOP are interested in fostering innovative and creative approaches to the enhancement of academic capabilities at minority colleges and universities and the development of the research capabilities of students and faculty members at such institutions through the establishment of partnerships and exchange programs in space science-related fields. Therefore, all proposals that directly address the program goals of this NRA, as stated in Appendix A, will be considered.

Appendix B provides the standard NASA guidance for responding to NASA Research Announcements (NRA's), while Appendix C provides amendatory guidance to Appendix B for the format and submission requirements for proposals to be submitted in response to this notice. Special attention is directed to the requirement for the electronic submission of both a Notice of Intent to Propose (NOI) and the electronic submission of a combined *Cover Page/Proposal Summary* for the proposal itself. See both Appendices A and C for further details regarding the proposal submission and review process.

Recommendations for funding will be based on results of the peer evaluation (by suitable panels of educators and scientists) of each proposal's educational and/or scientific merits and the proposal's prospects for successfully addressing the stated goals of this announcement. Specific criteria to be used in the evaluation of proposals are given in Appendix A. In all cases, the Government's obligation to make awards under this NRA is contingent upon the availability of appropriated funds, as well as the receipt of proposals that NASA determines are acceptable for award.

Since the OSS/OEOP Minority University Education and Research Partnership Initiative in Space Science is a new one, the effectiveness of the strategy outlined in Appendix A will be tested by sponsoring a variety of approaches to developing academic programs, enhancing the capabilities of students and faculty, and establishing education and research exchange programs and partnerships among a wide variety of types of institutions. Provided that appropriate proposals of merit are submitted, NASA plans to deliberately select proposals of different scales with diverse approaches to implementing these concepts from different types of minority colleges and universities located in many regions of the country and to evaluate the effectiveness of a broad range of approaches to meeting the goals of this announcement as a basis for possible follow-on activities. Such considerations will be an explicit part of the selection process.

Typical awards are expected to be in the range \$50,000 to \$250,000 per year commensurate with the scope, scale, and expected effectiveness and outcome of the proposed space science education or research partnership effort. Awards that will need continuation beyond the first year are contingent not only upon the annual demonstration of satisfactory progress but also availability of funds. Subject to the submission of qualified proposals, NASA plans to select and support awards totaling approximately \$3 million per year for three years. A proposal requesting more than \$250,000 per year will not be considered. See Appendix A for additional information.

~~Participation in this program will be open only to Principal Investigators employed at U.S. colleges and universities designated by the Department of Education as a minority institution in 1999. A list of the Department of Education designated minority institutions may be obtained through the World Wide Web URL <<http://www.ed.gov/offices/OCR/99minin.html>>.~~ **Participation in this program will be open only to Principal Investigators employed at U.S. colleges and universities designated by the Department of Education as a minority educational institution on its 2000 list by May 10, 2000 (the due date for proposals to this solicitation). The 2000 list of the Department of Education designated minority institutions may be obtained through the World Wide Web URL at <<http://www.ed.gov/offices/OCR/2000minorityinst.html>>.** All proposals must originate from one of the following: an accredited minority college or university referred to as an *Other Minority University (OMU)* as defined in the Higher Education Act [See 20 USC 1135d and 34 CFR 637.4b]; a *Historically Black College or University (HBCU)* under Title III of the Higher Education Act of 1965 as amended [See 34 CFR 608.2]; a *Hispanic-Serving Institution (HSI)* under Title III of the Higher Education Act of 1965 as amended [See 20 USC 1059 (c)]; Public Law 102-325, Section 306, July 22, 1992]; a *Tribal College or University (TCU)* cited in Section 532 of the Equity in Education Land Grant Status October 1994; Tribally Controlled Community College Assistance Act of 1978; or the Navajo Community College Assistance Act of 1978, Public Law 95-471. See Appendix A for additional information.

In addition, HBCU's, HSI's, TCU's, and OMU's that have received a total of \$1 million or more of funding support from NASA's Space Science Enterprise over the past three years are ineligible to participate. The goal of this Announcement is to broaden institutional participation in the space science program and not to increase the funding at institutions that are already significant participants. As is discussed in more detail in Appendix A, a portion (up to 25%) of the funds awarded to a minority institution may be spent at nonminority institutions to support the development of academic and research partnerships and exchange programs with such institutions.

Since one of the principal outcomes sought through this Announcement is to foster the development of strong linkages among the NASA Office of Space Science, the space science research community, and minority institutions through the establishment of exchange programs and partnerships, NASA's Office of Space Science and the Office of Equal Opportunity Programs are prepared to work with minority institutions to help develop such partnerships. Interested institutions (either minority or nonminority) should contact Dr. Deborah Hale or the designated point of contact in OEOP (see below) who will work with both minority and nonminority institutions as well as with the OSS Discipline Scientists to develop suitable contacts in areas of mutual interest. Potential Investigators at minority institutions with particular interests in the development of education programs may also contact the OSS Education and Outreach Broker/Facilitators for assistance. Information on the OSS Broker/Facilitators can be obtained through the Education/Outreach link on the OSS homepage, or directly at URL <http://spacescience.nasa.gov/education/ecosystem.htm>. While OSS and OEOP will work to help establish linkages between Minority Institutions and current participants in the space science program--and, through a variety of mechanisms, will strongly encourage those participants to become actively involved in working with minority colleges and universities--they cannot guarantee the success of efforts to establish such partnerships. In all cases, the ultimate responsibility for successfully establishing alliances rests with the proposer.

In view of the new and experimental nature of this the OSS/OEOP Minority University Education and Research Partnership Initiative in Space Science, a preproposal conference will be held. Details concerning the conference are discussed in Appendix A.

The following summary information applies to this NRA:

- Program announcement identifier: NRA 00-OSS-02
- Date of NRA issue: January 31, 2000
- Preproposal Conference: See Appendix A.4.1 for details;
questions due by March 15, 2000
- Notices of intent (NOI) to propose:
 - Due date: March 31, 2000
 - Internet URL for electronic submission: <http://www.lpi.usra.edu/panel/>
 - For web assistance: Phone: 281-486-2137 or
E-mail: panel@lpi.usra.edu

- Electronic submission of Cover Page/Proposal Summary:
 - Internet URL for electronic submission <http://www.lpi.usra.edu/panel/>
 - For web assistance: Phone: 281-486-2137 or
E-mail: panel@lpi.usra.edu
- Paper submission of Final Proposal:
 - Required number: The signed original plus 10 copies
 - Due date: May 10, 2000
 - Address for submission: NASA NRA 00-OSS-02
OSS/OEOP Minority University Education and
Research Partnership Initiative in Space Science
The Lunar and Planetary Institute
3600 Bay Area Boulevard
Houston, Texas 77058
Phone for commercial delivery: 281-486-2166
- Selecting Officials:

Associate Administrator
Office of Space Science

and

Associate Administrator
Office of Equal Opportunity Programs
- Announcement of selections: Goal: Mid-August 2000
- Initiation of new awards: Goal: September 2000
- Further information
 - NRA Goals and Content

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(use "OSS Minority Initiative" as subject)

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- General NRA procedures:

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While NASA attempts to ensure that its research announcements are distributed to the broadest possible audience of interested parties, this announcement for the OSS/OEOP Minority University Education and Research Partnership Initiative in Space Science may not reach everyone who may be interested. Therefore, we request that you alert any of your colleagues, whether in your institution or in others, that may be potentially interested in this announcement.

For recipients of this announcement interested in learning about other opportunities offered by OSS, one final point of important information: As of March 1998, NASA OSS began using an electronic notification system for all of its research program announcements. Subscription to this new service may be accomplished by accessing the OSS homepage on the World Wide Web at URL <<http://spacescience.nasa.gov>>, selecting the menu item *Get E-mail Announcements* and then follow the instructions within the subsection entitled *Space Science Research Announcements*. Owing to the increasing multidisciplinary nature of OSS programs, subscription to this electronic service will notify subscribers of all future NASA program announcements that are released, regardless of the OSS science theme or type of announcement (anticipated to be 10 to 15 items per year). Regardless of whether you subscribe to this service or not, all current OSS research announcements may always be accessed and downloaded by linking through *Research Opportunities* on this OSS homepage menu.

The Office of Space Science and the Office of Equal Opportunity Programs are committed to using space science as a vehicle for deepening the understanding and appreciation of science, mathematics, and technology by all citizens and to broadening the participation in the space science program by institutions that, up to now, have not been directly involved. This Education and Research Partnership in Space Science NRA represents an important initial step in that direction. Your interest and cooperation in responding to Announcement are appreciated. In addition, comments about the nature and/or structure of this NRA are sincerely solicited and welcome. Such comments may be directed to either Dr. Hale or Ms. Mateu, as identified above.

Edward J. Weiler
Associate Administrator
Office of Space Science

George E. Reese
Associate Administrator
Office of Equal Opportunity Programs

APPENDICES

APPENDIX A. PROGRAM DESCRIPTION: OFFICE OF SPACE SCIENCE/OFFICE OF EQUAL OPPORTUNITY PROGRAMS MINORITY UNIVERSITY EDUCATION AND RESEARCH PARTNERSHIP INITIATIVE IN SPACE SCIENCE

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**OFFICE OF SPACE SCIENCE / OFFICE OF EQUAL OPPORTUNITY PROGRAMS
MINORITY UNIVERSITY EDUCATION AND RESEARCH PARTNERSHIP INITIATIVE IN
SPACE SCIENCE: PROGRAM DESCRIPTION**

A.1 SCOPE OF THE PROGRAM

NASA agency-wide recognizes that critical steps must be taken to broaden the participation of underrepresented groups and minority institutions in NASA research programs and missions. According to *NASA's 1996 Science Policy Guide*, "The economic vitality of our nation depends increasingly on new scientific knowledge and its application. For NASA, this means ensuring that the ideas and capabilities of the widest possible talent pool are brought to bear on its missions." Furthermore, to ensure that a continuing supply of scientists, engineers, and technologists will be available to meet the needs of the twenty-first century in the Space Science Enterprise, the *Space Science Enterprise Strategic Plan* "promotes the involvement of underserved/underutilized groups in Space Science education and outreach programs and their participation in Space Science research and development activities..." This Office of Space Science / Office of Equal Opportunity Programs Minority University Education and Research Partnership Initiative in Space Science has been established to respond to these mandates.

A.1.1 Program Goals

The long-term goals for this Initiative are to:

- 1) Enhance minority college (2-year and 4-year) and university participation in Space Science education and research programs; and
- 2) Increase the understanding of science, technology, and the role of research in contemporary society by a broad and diverse segment of the American population.

Fostering and facilitating the establishment of strong linkages among the NASA Office of Space Science, the space science research community, and minority institutions through the establishment of exchange programs and partnerships is a key element in the strategy for actually realizing these goals.

To begin to address these long-term goals, there are two specific near-term goals for this NASA Research Announcement (NRA):

- 1) The development of space science-related academic capabilities at minority colleges and universities and, working through those institutions, the development of space science-related education programs and materials aimed at many levels in the education system; and
- 2) The enhancement/development of the educational and research capabilities of faculty and students in space science-related fields through the establishment of partnerships and exchange programs in research and education with NASA-supported space science research groups at colleges and universities, NASA Centers, other federal laboratories, and industrial organizations throughout the country.

A.1.2 Eligible Institutions

~~For purposes of this Announcement, participation will be open only to Principal Investigators employed at U.S. colleges and universities designated by the Department of Education as a minority educational institution in 1999. In all cases, an educational institution is defined to be an university or two year or four year college (including a U.S. community college) accredited to confer degrees beyond that of the K-12 grade levels (all such institutions are considered by NASA as nonprofit). A list of the Department of Education designated minority institutions may be obtained through the World Wide Web URL <<http://www.ed.gov/offices/OCR/99minin.html>>.~~

For purposes of this Announcement, participation will be open only to Principal Investigators employed at U.S. colleges and universities designated by the Department of Education as a minority educational institution on its 2000 list by May 10, 2000 (the due date for proposals to this solicitation). In all cases, an educational institution is defined to be an university or two-year or four-year college (including a U.S. community college) accredited to confer degrees beyond that of the K-12 grade levels (all such institutions are considered by NASA as nonprofit). The 2000 list of the Department of Education designated minority institutions may be obtained through the World Wide Web URL at <<http://www.ed.gov/offices/OCR/2000minorityinst.html>>.

All proposals must originate from one of the following:

- An accredited minority college or university with enrollment of a single underrepresented minority group or the combination of underrepresented minority groups that exceeds 50 percent of the total student enrollment as defined in the Higher Education Act [See 20 USC 1135d and 34 CFR 637.4b]. These institutions will be referred to as *Other Minority Universities (OMU's)*;
- A *Historically Black College or University (HBCU)* under Title III of the Higher Education Act of 1965 as amended [See 34 CFR 608.2]; and/or
- A *Hispanic-Serving Institution (HSI)* under Title III of the Higher Education Act of 1965 as amended [See 20 USC 1059 (c)]; Public Law 102-325, Section 306, July 22, 1992]; and/or
- A *Tribal College or University (TCU)* cited in Section 532 of the Equity in Education Land Grant Status October 1994; Tribally Controlled Community College Assistance Act of 1978; or the Navajo Community College Assistance Act of 1978, Public Law 95-471.

In addition, for reasons explained in the Cover Letter, HBCU, HSI, TCU, and OMU institutions that have received a total of more than \$1 million or more of funding support from NASA's Space Science Enterprise over the past three years are ineligible to participate.

A.1.3 Categories of Opportunity

1. In order to meet both the long-term and near-term goals stated earlier, as well as to encourage and foster the development of linkages among the NASA Office of Space Science, the space science research community, and minority institutions, this Announcement solicits education and research proposals in the following two broad categories:

- A. Academic Program Development, and
- B. Faculty/Student Professional Enhancement and Development Through Partnerships and Exchange Programs

2. The following sections explain each category and provide a few examples of the types of programs that might be proposed in response to this NRA. Because this NRA encourages innovative and creative approaches to the development of space science-related academic and research capabilities at minority institutions, this list of examples should be regarded as illustrative and not as exclusive or exhaustive.

3. A. Academic Program Development

The objective of this Category of Opportunity is to support the development of space science-related academic capabilities at minority colleges and universities and, working through those institutions, the development of space science-related education programs and materials aimed at many levels in the education system. Consequently, this Category of Opportunity focuses on undergraduate education and on programs directed towards K-12 education and the broad public understanding of NASA space science. It is expected that any proposed K-12 or public education programs will be undertaken in partnership with suitable outside organizations such as school districts, science museums, planetariums, or other appropriate education partners.

Proposals dealing with the precollege education system are expected to be aligned with standards-based education and ongoing educational systemic reform efforts. Academic programs that contribute to the development of preservice or in-service teachers also are strongly encouraged. While graduate education is not the major area of emphasis for this Announcement, in exceptional cases, proposals for the development of new graduate courses will be considered as well.

Proposals in this category should explicitly demonstrate that the development of enhanced faculty instructional/student learning capabilities will contribute to the development of improved academic capabilities of the proposing institution and will be aligned with the long-term plans of that institution.

Illustrations of activities that might be proposed in this category are to:

- Provide the opportunity for current college and university faculty, visiting faculty, new faculty hires, or temporary faculty to assume primary responsibilities for revising existing courses/developing new undergraduate space science-related courses for science majors, nonscience majors, or special science courses for preservice teachers;
- Establish space science courses for students in rural or remote areas using modern communications technology such as satellite/video distance learning or web based, online Internet instructional delivery systems. Such courses might be developed by an individual minority institution or by a consortium of minority institutions; and/or
- Develop new space science-related summer institutes or workshops for in-service teachers.

This Category of Opportunity also invites proposals encouraging minority institutions to establish meaningful collaborations/partnerships to enhance education with space science content in a broad spectrum of other institutions, including K-12 schools, museums, planetariums, community organizations, etc. Examples of programs that might be carried out by a minority college or consortium of such institutions in collaboration with local education systems or community organizations are:

- Programs that introduce K-12 students and teachers to the fundamental science, mathematics, or technology of NASA space science;
- K-12 enrichment programs/courses targeted to promising high school students in science, mathematics, engineering, and technology (SMET) centered on space science content (e.g. Saturday programs focused on space science topics); and/or
- Programs that take advantage of unique capabilities or ongoing programs that may exist in the community (e.g., lecture series, planetarium shows, informal science education classes) to provide new space science-related educational opportunities to the general public.

B. Faculty/Student Professional Enhancement and Development Through Partnerships and Exchange Programs

Quality education in science requires faculty who are intellectually up-to-date in their fields, directly involved in advancing the frontiers of knowledge, acquainted with new research techniques, closely linked into the mainstream of the education and research communities in their area of expertise, and experienced in effective instructional practices. Similarly, students must be exposed to current developments and state-of-the-art practices in their field of interest in order to take advantage of new learning opportunities at the undergraduate level or to prepare for graduate study. In many minority institutions, both students and

faculty may work in relative isolation and not have ready access to the types of intellectual and institutional support systems readily available at other types of institutions, particularly those that are currently deeply involved in space science research. Unfortunately, such research institutions are also generally unfamiliar with the capabilities of the students and faculty at minority institutions—a situation that can (and often does) unintentionally limit opportunities for both parties.

Therefore, the objective of this Category of Opportunity is to enhance the capabilities of students and faculty members at minority institutions in space science-related fields through the establishment of suitable research and/or education partnerships or exchange programs between minority universities and the NASA-supported space science research community. Such partnerships and exchange programs might take on a variety of forms in order to accomplish a variety of purposes such as:

- Providing opportunities (through short-term or long-term visits) for faculty from a minority institution to participate in research/education efforts at the partnering institution in order to gain a better appreciation of current research or to develop new technical, experimental, observational, theoretical, or computational skills that can be used to enhance academic and research programs at their home institution;
- Providing opportunities for students and faculty from minority institutions to carry out short-term or long-term visits to partnering institutions in conjunction with the planning/implementation of long-term collaborative research programs;
- Providing opportunities for students from minority institutions to enrich their academic experiences by taking appropriate space-science related courses not offered at their home institution during a summer or an academic semester at a partnering institution;
- Providing opportunities for current space science researchers in major research institutions to carry out short-term or long-term visits to minority institutions to work with faculty to develop new courses, organize seminars and other academic programs, help assess student readiness for undertaking advanced work in order to develop effective strategies to help bridge potential education gaps, conduct research or teach at a minority university during an extended visit, or work with minority institutions to help them develop their own research capabilities;
- Enhancing the research capabilities available to faculty and students at minority institutions by providing ready access on an ongoing basis to laboratory or computational capabilities or to special expertise that may only be available at a partnering institution; and/or
- Enabling the space science research community to learn about or gain a deeper appreciation of the capabilities of minority institutions, faculty members and, perhaps most importantly, the students at colleges and universities that, up to now, they have not worked with on a regular basis.

Proposed programs for this Category of Opportunity must be based on appropriate research and/or education partnerships between minority institutions and space science research groups located at universities, NASA Centers, Federal Laboratories, or other types of research institutions throughout the country. Proposals that do not involve such a partnership will not be considered. The collaboration must be an integral element of the proposal and is expected to involve an ongoing relationship between the partners extending throughout the entire period of performance of any award resulting from this solicitation. In order to support activities undertaken by a nonminority partner, up to 25 % of awarded funds may be spent at or by the collaborating institution to support exchange visits, the development of joint research or education programs, or other appropriate purposes. Additional guidance is given in this Appendix, Section A.2 and Appendix C.5.3

As indicated in the Cover Letter, the Office of Space Science and the Office of Equal Opportunity Programs are prepared to work with minority colleges and universities to help develop suitable partnerships and exchange programs with space science research groups across the country. While OSS/OEOP will work to help establish linkages between minority institutions and current participants in the space science program—and, will strongly encourage those participants to become actively involved in working with minority colleges and universities—they cannot guarantee the success of efforts to establish such partnerships. In all cases, the ultimate responsibility for successfully establishing alliances rests with the proposer.

This effort to establish meaningful partnerships between minority colleges and universities and the broad space science research community signals a significant new direction for the Office of Space Science and the Office of Equal Opportunity Programs. It is, in many ways, an experiment. It should be regarded as the beginning of a sustained process to forge strong links between the two communities. Achieving even a few early successes will demonstrate the potential for what can be done over the longer term.

A. 2 PROGRAMMATIC INFORMATION

A.2.1 Program Guidelines and Constraints

Proposals that do not meet these Program Guidelines and Constraints will not be considered further in the evaluation process. To be considered for selection under this NRA, proposals must:

- Demonstrate a direct intellectual and/or programmatic linkage between their proposed education or research program and the current scientific content and/or future interests of the Space Science Enterprise. While proposals dealing with the technology and engineering aspects of space science may be submitted as part of a broad program of space science education/research, proposals primarily centered on technology or engineering will not be considered.

- Be focused on program activities such as enhancement of instructional/student learning capabilities, development of course/curriculum materials, and professional enhancement rather than supporting large capital expenditures for hardware, equipment, or building improvements. Where appropriate, a modest amount of funding (up to 15% of the total budget) may be used to acquire necessary equipment to support the proposed education or research activity or to develop the capability to continue a collaboration at the proposer's home institution provided that a clear need is demonstrated in the proposal to justify a request for such expenditures.
- Be based on appropriate (and documented) partnerships/collaborations for programs that involve activities to enhance the educational or research capabilities of faculty/students through partnerships and exchange programs. Further, such partnerships must involve a genuine and ongoing relationship throughout the entire period of the award. [Note that stand-alone research projects undertaken by a single institution will not be supported under this NRA. Other avenues for support of such activities (e.g., Office of Space Science Research Announcements, Minority University Research and Education Division Faculty Awards for Research, NASA Education Division's Summer Faculty Fellowships and Administrator's Fellowships) are available. Information about such research opportunities can be accessed from the NASA Homepage <<http://www.nasa.gov/>>. In particular, OSS research announcements may be accessed and downloaded by linking through to "Research Opportunities" on the OSS homepage menu at <<http://spacescience.nasa.gov/>>.]
- Be submitted by a Principal Investigator at an eligible minority institution as defined in Section A 1.2. Proposals must be directed by a single Principal Investigator who will be programmatically and financially responsible for all aspects of the overall planning, implementation, and evaluation of the proposed education and/or research program effort.
- Involve the expenditure of funds primarily for programs being carried out at or directly by minority institutions. For programs involving interactions such as partnerships, collaborations, or exchanges with nonminority institutions, a maximum of up to twenty-five percent (25%) of the project's annual budget may be spent on activities undertaken by the nonminority institution(s). In such cases, appropriate partners or Co-Investigators, having clearly defined, integral roles and responsibilities in the proposed program, must be identified in the proposal together with evidence supporting their commitment to participate in the collaborative activity.

A. 2.2. Awards Information

It is anticipated that all awards will be made either as a grant or a Cooperative Agreement. Typical awards are expected to be in the range \$50,000 to \$250,000 per year commensurate with the scope, scale, expected effectiveness, and outcome of the proposed space science education or research partnership effort. Awards are expected to be for two or three years with continuation past the first year contingent upon the annual demonstration of satisfactory progress and the availability of funds. Subject to the submission of qualified proposals, NASA plans to select and support awards totaling approximately \$3 million per year for three years. A proposal requesting more than \$250,000 per year will not be considered.

A. 2.3 Continuation Beyond the Initial Year

Awards that will need continuation beyond the first year are contingent not only upon the annual demonstration of satisfactory progress but also availability of funds. Successful performance must be demonstrated through the submission each year of an *Annual Progress Report* demonstrating satisfactory progress to date together with an outline of plans and an associated budget for the follow-on year. Details for submission of *Annual Progress Report* will be provided to awardees during the program initiation meeting at NASA Headquarters (see Appendix C, Section C.1.5).

A. 2.4. Annual Conference

In addition to the program initiation meeting described in Appendix C, Section C.1.5, awardees will be required to attend an annual conference. Both the Principal Investigator (PI) from the lead institution and key Co-Investigators (Co-I's) from partnering institutions identified in the proposal will be expected to attend and to participate in the conference. Proposals should budget for appropriate travel to support this activity. For planning purposes, it should be assumed that these meetings would be held in the Washington area. This conference will be an excellent opportunity for participants to meet, formally and informally, to discuss "lessons learned," to interact with OSS scientists and program managers, and to establish the foundations for new collaborations and cooperative activities.

A.3 RESPONSIBILITIES OF PARTIES

For proposals selected through this NRA solicitation, proposers must demonstrate that (i) the necessary capabilities for conducting the proposed activities exist in their own facilities or at those of collaborating institutions (which may include educational institutions, profit and nonprofit organizations, NASA centers, and other Government agencies) cited in the proposal; and (ii) the proposed effort will be led by a single Principal Investigator (PI) from a qualifying minority institution, who has overall responsibility for the program. There is no limit on the number of Co-Investigators (Co-I's) from the lead or collaborating institutions, but each Co-I must have distinct, well-defined responsibilities that are clearly specified in the proposal.

A.4 PROPOSAL PREPARATION, EVALUATION, AND SELECTION PROCEDURES

A.4.1 Preproposal Conference

While it is not the usual OSS/OEOP practice to conduct a preproposal conference for NASA Research Announcements, many potential participants at minority institutions may not be familiar with the Space Science Enterprise and the specific OSS goals for this solicitation. The Office of Space Science/Office of Equal Opportunity Programs Minority University Education and Research Partnership Initiative in Space Science described in this NRA represents a new approach for both OSS and OEOP and an initial step towards developing a direct relationship between OSS and minority institutions. Unlike most announcements, this NRA's focus is not on stand-alone, individual research efforts but on fostering education programs and space science-related educational and research partnership efforts that will have a direct impact on improving the instructional and research capabilities at minority institutions. Therefore, in this case, an electronic preproposal conference will be offered to assist prospective proposers in gaining a better understanding of this announcement and its intent. This preproposal conference will be

designed to reach the widest number of potential proposers by providing access to it via the Internet and NASA media technologies. The purpose of this conference will be to provide information about the proposal process for this NRA, to detail its purpose/intent, to include a discussion of the evaluation criteria, and to illustrate the electronic submission process for notices of intent and Cover Page/Proposal Summary.

The preproposal conference will address all those questions received by NASA on or before the date given in the NRA Cover Letter. Questions should be addressed to Dr. Deborah Hale or to Ms. Milagros Mateu at the E-mail address, mailing addresses, or fax numbers listed in the NRA Cover Letter. Additional questions submitted via fax or electronic mail after that due date but prior to the conference and during the preproposal conference may be addressed at the conference as time permits. Anonymity of the authors of all questions will be honored. A Preproposal Conference Transcript, including answers to all questions submitted prior to or subsequent to the conference will be prepared and published on the OSS homepage under the OSS “Research Announcement” menu at <<http://spacescience.nasa.gov>>.

For further information, including the preproposal conference date and the logistics for accessing the conference, will be published on the OSS homepage under the OSS “Research Announcement” menu at <<http://spacescience.nasa.gov>>. Prospective proposers are advised to check this site for conference announcements.

A.4.2 Proposal Preparation, Evaluation, and Selection Procedures

The proposal preparation, evaluation criteria, and the selection procedures are given in Appendix C.

APPENDIX B

GENERAL INSTRUCTIONS FOR RESPONDING TO NASA RESEARCH ANNOUNCEMENTS

- B. a. General
- B. b. NRA-Specific Items
- B. c. Proposal Contents
- B. d. Renewal Proposals
- B. e. Length
- B. f. Joint Proposals
- B. g. Late Proposals
- B. h. Withdrawal
- B. i. Evaluation Factors
- B. j. Evaluation Techniques
- B. k. Selection for Award
- B. l. Additional Guidelines to Foreign Proposals
- B. m. Cancellation of NRA

INSTRUCTIONS FOR RESPONDING TO NASA RESEARCH ANNOUNCEMENTS

(September 1999 as revised per NASA Deviation dtd. January 5, 2000)

NASA Federal Acquisition Regulations (FAR) Supplement (NFS) Version 97.0 Part 1852.235-72 (accessible through URL <<http://www.hq.nasa.gov/office/procurement/regs/nfstoc.htm>>, open "Part 1852.228 to 1852.241" from the menu).

(a). General.

- (1) Proposals received in response to a NASA Research Announcement (NRA) will be used only for evaluation purposes. NASA does not allow a proposal, the contents of which are not available without restriction from another source, or any unique ideas submitted in response to an NRA to be used as the basis of a solicitation or in negotiation with other organizations, nor is a preaward synopsis published for individual proposals.
 - (2) A solicited proposal that results in a NASA award becomes part of the record of that transaction and may be available to the public on specific request; however, information or material that NASA and the awardee mutually agree to be of a privileged nature will be held in confidence to the extent permitted by law, including the Freedom of Information Act.
 - (3) NRA's contain programmatic information and certain requirements which apply only to proposals prepared in response to that particular announcement. These instructions contain the general proposal preparation information which applies to responses to all NRA's.
 - (4) A contract, grant, cooperative agreement, or other agreement may be used to accomplish an effort funded in response to a NRA. NASA will determine the appropriate instrument. Contracts resulting from NRA's are subject to the Federal Acquisition Regulation (FAR) and the NASA FAR Supplement (NFS). Any resultant grants or cooperative agreements will be awarded and administered in accordance with the NASA Grant and Cooperative Agreement Handbook (NPG 5800.1).
 - (5) NASA does not have mandatory forms or formats for responses to NRA's; however, it is requested that proposals conform to the guidelines in these instructions. NASA may accept proposals without discussion; hence, proposals should initially be as complete as possible and be submitted on the proposers' most favorable terms.
 - (6) To be considered for award, a submission must, at a minimum, present a specific project within the areas delineated by the NRA; contain sufficient technical and cost information to permit a meaningful evaluation; be signed by an official authorized to legally bind the submitting organization; not merely offer to perform standard services or to just provide computer facilities or services; and not significantly duplicate a more specific current or pending NASA solicitation.
- (b). NRA-Specific Items. Several proposal submission items appear in the NRA itself: the unique NRA identifier; when to submit proposals; where to send proposals; number of copies required; and sources for more information. Items included in these instructions may be supplemented by the NRA.
- (c) The following information is needed to permit consideration in an objective manner. NRA's will generally specify topics for which additional information or greater detail is desirable. Each proposal copy shall contain all submitted material, including a copy of the transmittal letter if it contains substantive information.

(1) *Transmittal Letter or Prefatory Material.*

- (i) The legal name and address of the organization and specific division or campus identification if part of a larger organization;
- (ii) A brief, scientifically valid project title intelligible to a scientifically literate reader and suitable for use in the public press;
- (iii) Type of organization: e.g., profit, nonprofit, educational, small business, minority, women-owned, etc.
- (iv) Name and telephone number of the principal investigator and business personnel who may be contacted during evaluation or negotiation;
- (v) Identification of other organizations that are currently evaluating a proposal for the same efforts;
- (vi) Identification of the NRA, by number and title, to which the proposal is responding;
- (vii) Dollar amount requested, desired starting date, and duration of project;
- (viii) Date of submission; and
- (ix) Signature of a responsible official or authorized representative of the organization, or any other person authorized to legally bind the organization (unless the signature appears on the proposal itself).

(2) *Restriction on Use and Disclosure of Proposal Information.* Information contained in proposals is used for evaluation purposes only. Offerors or quoters should, in order to maximize protection of trade secrets or other information that is confidential or privileged, place the following notice on the title page of the proposal and specify the information subject to the notice by inserting an appropriate identification in the notice. In any event, information contained in proposals will be protected to the extent permitted by law, but NASA assumes no liability for use and disclosure of information not made subject to the notice.

Notice

Restriction on Use and Disclosure of Proposal Information

The information (data) contained in [insert page numbers or other identification] of this proposal constitutes a trade secret and/or information that is commercial or financial and confidential or privileged. It is furnished to the Government in confidence with the understanding that it will not, without permission of the offeror, be used or disclosed other than for evaluation purposes; provided, however, that in the event a contract (or other agreement) is awarded on the basis of this proposal, the Government shall have the right to use and disclose this information (data) to the extent provided in the contract (or other agreement). This restriction does not limit the Government's right to use or disclose this information (data) if obtained from another source without restriction.

- (3) *Abstract.* Include a concise (200-300 word if not otherwise specified in the NRA) abstract describing the objective and the method of approach.

(4) *Project Description.*

(i) The main body of the proposal shall be a detailed statement of the work to be undertaken and should include objectives and expected significance; relation to the present state of knowledge; and relation to previous work done on the project and to related work in progress elsewhere. The statement should outline the plan of work, including the broad design of experiments to be undertaken and a description of experimental methods and procedures. The project description should address the evaluation factors in these instructions and any specific factors in the NRA. Any substantial collaboration with individuals not referred to in the budget or use of consultants should be described. Subcontracting significant portions of a research project is discouraged.

(ii) When it is expected that the effort will require more than one year, the proposal should cover the complete project to the extent that it can be reasonably anticipated. Principal emphasis should be on the first year of work, and the description should distinguish clearly between the first year's work and work planned for subsequent years.

(5) *Management Approach.* For large or complex efforts involving interactions among numerous individuals or other organizations, plans for distribution of responsibilities and arrangements for ensuring a coordinated effort should be described.

(6) *Personnel.* The principal investigator is responsible for supervision of the work and participates in the conduct of the research regardless of whether or not compensated under the award. A short biographical sketch of the principal investigator, a list of principal publications, and any exceptional qualifications should be included. Omit social security number and other personal items which do not merit consideration in evaluation of the proposal. Give similar biographical information on other senior professional personnel who will be directly associated with the project. Give the names and titles of any other scientists and technical personnel associated substantially with the project in an advisory capacity. Universities should list the approximate number of students or other assistants, together with information as to their level of academic attainment. Any special industry-university cooperative arrangements should be described.

(7) *Facilities and Equipment.*

- (i) Describe available facilities and major items of equipment especially adapted or suited to the proposed project, and any additional major equipment that will be required. Identify any Government-owned facilities, industrial plant equipment, or special tooling that are proposed for use. Include evidence of its availability and the cognizant Government points of contact.
- (ii) Before requesting a major item of capital equipment, the proposer should determine if sharing or loan of equipment already within the organization is a feasible alternative. Where such arrangements cannot be made, the proposal should so state. The need for items that typically can be used for research and non- research purposes should be explained.

(8) *Proposed Costs (U.S. Proposals Only).*

- (i) Proposals should contain cost and technical parts in one volume: do not use separate "confidential" salary pages. As applicable, include separate cost estimates for salaries and wages; fringe benefits; equipment; expendable materials and supplies; services; domestic and foreign travel; ADP expenses; publication or page charges; consultants; subcontracts; other miscellaneous identifiable direct costs; and indirect costs. List salaries and wages in appropriate organizational categories (e.g., principal investigator, other scientific and engineering professionals, graduate students, research assistants, and technicians and other non-professional personnel). Estimate all staffing data in terms of staff-months or fractions of full-time.
- (ii) Explanatory notes should accompany the cost proposal to provide identification and estimated cost of major capital equipment items to be acquired; purpose and estimated number and lengths of trips planned; basis for indirect cost computation (including date of most recent negotiation and cognizant agency); and clarification of other items in the cost proposal that are not self-evident. List estimated expenses as yearly requirements by major work phases.
- (iii) Allowable costs are governed by FAR Part 31 and the NASA FAR Supplement Part 1831 (and OMB Circulars A-21 for educational institutions and A-122 for nonprofit organizations).
- (iv) Use of NASA funds--NASA funding may not be used for foreign research efforts at any level, whether as a collaborator or a subcontract. The direct purchase of supplies and/or services, which do not constitute research, from non-U.S. sources by U.S. award recipients is permitted. Additionally, in accordance with the National Space Transportation Policy, use of a non-U.S. manufactured launch vehicle is permitted only on a no-exchange-of-funds basis.

(9) *Security.* Proposals should not contain security classified material. If the research requires access to or may generate security classified information, the submitter will be required to comply with Government security regulations.

(10) *Current Support.* For other current projects being conducted by the principal investigator, provide title of project, sponsoring agency, and ending date.

(11) *Special Matters.*

- (i) Include any required statements of environmental impact of the research, human subject or animal care provisions, conflict of interest, or on such other topics as may be required by the nature of the effort and current statutes, executive orders, or other current Government-wide guidelines.
- (ii) Proposers should include a brief description of the organization, its facilities, and previous work experience in the field of the proposal. Identify the cognizant Government audit agency, inspection agency, and administrative contracting officer, when applicable.

(d). Renewal Proposals

(1) Renewal proposals for existing awards will be considered in the same manner as proposals for new endeavors. A renewal proposal should not repeat all of the information that was in the original proposal. The renewal proposal should refer to its predecessor, update the parts that are no longer current, and indicate what elements of the research are expected to be covered during the period for which support is desired. A description of any significant findings since the most recent progress report should be included. The renewal proposal should treat, in reasonable detail, the plans for the next period, contain a cost estimate, and otherwise adhere to these instructions.

(2) NASA may renew an effort either through amendment of an existing contract or by a new award.

(e). Length. Unless otherwise specified in the NRA, effort should be made to keep proposals as brief as possible, concentrating on substantive material. Few proposals need exceed 15-20 pages. Necessary detailed information, such as reprints, should be included as attachments. A complete set of attachments is necessary for each copy of the proposal. As proposals are not returned, avoid use of "one-of-a-kind" attachments.

(f). Joint Proposals.

(1) Where multiple organizations are involved, the proposal may be submitted by only one of them. It should clearly describe the role to be played by the other organizations and indicate the legal and managerial arrangements contemplated. In other instances, simultaneous submission of related proposals from each organization might be appropriate, in which case parallel awards would be made.

(2) Where a project of a cooperative nature with NASA is contemplated, describe the contributions expected from any participating NASA investigator and agency facilities or equipment which may be required. The proposal must be confined only to that which the proposing organization can commit itself. "Joint" proposals which specify the internal arrangements NASA will actually make are not acceptable as a means of establishing an agency commitment.

(g). Late Proposals. Proposals or proposal modifications received after the latest date specified for receipt may be considered if a significant reduction in cost to the Government is probable or if there are significant technical advantages, as compared with proposals previously received.

(h). Withdrawal. Proposals may be withdrawn by the proposer at any time before award. Offerors are requested to notify NASA if the proposal is funded by another organization or of other changed circumstances which dictate termination of evaluation.

(i). Evaluation Factors

(1) Unless otherwise specified in the NRA, the principal elements (of approximately equal weight) considered in evaluating a proposal are its relevance to NASA's objectives, intrinsic merit, and cost.

(2) Evaluation of a proposal's relevance to NASA's objectives includes the consideration of the potential contribution of the effort to NASA's mission.

(3) Evaluation of its intrinsic merit includes the consideration of the following factors of equal importance:

- (i) Overall scientific or technical merit of the proposal or unique and innovative methods, approaches, or concepts demonstrated by the proposal.
 - (ii) Offeror's capabilities, related experience, facilities, techniques, or unique combinations of these which are integral factors for achieving the proposal objectives.
 - (iii) The qualifications, capabilities, and experience of the proposed principal investigator, team leader, or key personnel critical in achieving the proposal objectives.
 - (iv) Overall standing among similar proposals and/or evaluation against the state-of-the-art.
 - (4) Evaluation of the cost of a proposed effort may include the realism and reasonableness of the proposed cost and available funds.
- (j). Evaluation Techniques. Selection decisions will be made following peer and/or scientific review of the proposals. Several evaluation techniques are regularly used within NASA. In all cases, proposals are subject to scientific review by discipline specialists in the area of the proposal. Some proposals are reviewed entirely in-house, others are evaluated by a combination of in-house and selected external reviewers, while yet others are subject to the full external peer review technique (with due regard for conflict-of-interest and protection of proposal information), such as by mail or through assembled panels. The final decisions are made by a NASA selecting official. A proposal which is scientifically and programmatically meritorious, but not selected for award during its initial review, may be included in subsequent reviews unless the proposer requests otherwise.
- (k). Selection for Award.
- (1) When a proposal is not selected for award, the proposer will be notified. NASA will explain generally why the proposal was not selected. Proposers desiring additional information may contact the selecting official who will arrange a debriefing.
 - (2) When a proposal is selected for award, negotiation and award will be handled by the procurement office in the funding installation. The proposal is used as the basis for negotiation. The contracting officer may request certain business data and may forward a model award instrument and other information pertinent to negotiation.
- (l). Additional Guidelines Applicable to Foreign Proposals and Proposals Including Foreign Participation.
- (1) NASA welcomes proposals from outside the U.S. However, foreign entities are generally not eligible for funding from NASA. Therefore, proposals from foreign entities should not include a cost plan unless the proposal involves collaboration with a U.S. institution, in which case a cost plan for only the participation of the U.S. entity must be included (unless otherwise noted in the NRA). Proposals from foreign entities and proposals from U.S. entities that include foreign participation must be endorsed by the respective government agency or funding/sponsoring institution in the country from which the non-U.S. participant is proposing. Such endorsement should indicate that the proposal merits careful consideration by NASA, and if the proposal is selected, sufficient funds will be made available to undertake the activity as proposed.

- (2) All foreign proposals must be typewritten in English and comply with all other submission requirements stated in the NRA. All foreign proposals will undergo the same evaluation and selection process as those originating in the U.S. All proposals must be received before the established closing date. Those received after the closing date will be treated in accordance with paragraph (g) of this provision. Sponsoring foreign government agencies or funding institutions may, in exceptional situations, forward a proposal without endorsement to the above address if endorsement is not possible before the announced closing date. In such cases, the NASA sponsoring office should be advised when a decision on endorsement can be expected.
- (3) Successful and unsuccessful foreign entities will be contacted directly by the NASA sponsoring office. Copies of these letters will be sent to the foreign sponsor. Should a foreign proposal or a U.S. proposal with foreign participation be selected, NASA's Office of External Relations will arrange with the foreign sponsor for the proposed participation on a no-exchange-of-funds basis, in which NASA and the non-U.S. sponsoring agency or funding institution will each bear the cost of discharging their respective responsibilities.
- (4) Depending on the nature and extent of the proposed cooperation, this arrangement may entail:
 - (i) An exchange of letters between NASA and the foreign sponsor; or
 - (ii) A formal Agency-to-Agency Memorandum of Understanding (MOU).
- (m) Cancellation of NRA. NASA reserves the right to make no awards under this NRA and to cancel this NRA. NASA assumes no liability for canceling the NRA or for anyone's failure to receive actual notice of cancellation.

APPENDIX C

SPECIFIC GUIDANCE FOR RESPONDING TO THE NRA 00-OSS-XX

C.1 Introduction

- C.1.1 General Provisions and Policies
- C.1.2 Types of Proposing Institutions
- C.1.3 Proposal Personnel
- C.1.4 Proposal Evaluation
- C.1.5 Proposal Selection and Program Initiation

C.2 Notice of Intent (NOI)/Proposal Submission Instructions

C.3 “Renewal” Proposals

C.4 Guidelines for International Participation

C.5 Guidelines for Preparation of Proposal

- C.5.1 Standard Default Formats
- C.5.2 Checklist For Proposal Preparation and Submission
- C.5.3 Details of Proposal Contents
 - Cover Page/Proposal Summary
 - Table of Contents
 - Summary of Personnel, Commitments, and Costs
 - Scientific/Technical/Educational Section
 - Management/Project Plan
 - Current and Pending Support
 - Final Report
 - Budget Summary and Details
 - Allowable Expenses
 - Facilities and Equipment
 - Curriculum Vitae
 - Statements of Commitment from Co-I's and/or Partners
 - Workforce Staffing Plan for Key Personnel
 - Reprints/Preprints

C.6. Forms and Certifications

- NASA *Budget Summary* Format
- Instructions for Budget Summary
- Certifications (*Debarment...; Lobbying; and Civil Rights*)

3.1.1 C.1 Introduction

C.1.1 General Provisions and Policies

- *Relationship of Appendices B and C.* The material in Appendix C augments and supplements the material in Appendix B of this NRA. In case of conflict, the material in Appendix C takes precedence.
- *Nominal Period of Performance for Selected Proposals.* Unless otherwise specified in Appendix A, the period of performance for a proposal submitted in response to this NRA is restricted to three years or less. For such multiple year awards, yearly funding allotments are provided only after the submission of an acceptable progress report.
- *Unrestricted Freedom to Propose to this NRA.* NASA OSS welcomes proposals in response to this NRA from all qualified proposers. Participation as the Principal Investigator must come from an appropriate minority institution as defined in Appendix A.1.2. However, participation as a partner to the PI institution is open to all categories of U.S. organizations including educational institutions, industry, nonprofit institutions, NASA Centers, and other Government agencies. In accordance with Federal statutes and NASA policy, no eligible applicant shall be excluded from participation in, denied the benefits of, or be subjected to discrimination under any program or activity receiving financial assistance from NASA on the grounds of race, color, creed, age, sex, national origin, or disability.
- *Anticipated Level of Competition for Selection.* This is a new NRA solicitation and the level of competition for it has yet to be determined.
- *Public Access to Data.* As a matter of NASA policy, all data taken or products created in the performance of a NASA research award are considered to be public domain. In addition, NASA may judge that new data or products obtained through an investigation selected through this NRA may be of value to the science and/or education communities at large. If so, NASA reserves the right to direct that such items be deposited in an approved publicly accessible site.
- *Data and Computational Infrastructure.* Information on current space science data centers and services can be found on the World Wide Web at <<http://ssds.nasa.gov>>.

Information on high performance computing resources can be found at <<http://spacescience.nasa.gov/hecc>>. Any need for high performance computing resources for the proposed research should be explicitly described in the proposal, including the computing system, location, and an estimate of the amount of computing time needed.

- *Late proposals.* For this NRA, late proposals generally will not be considered. However, NASA's general policy on late proposals is given in Section (g) of Appendix B and states that such a proposal or proposal modifications received after the latest date specified for receipt may be considered if a significant reduction in cost to the Government is probable or if there are significant technical advantages, as compared with proposals previously received. Owing to the historically large over-subscription of proposals for NASA's programs, a proposal submitted after the published deadline is unlikely to be considered of uniquely greater value to NASA than the proposals that are submitted on time. Finally, note that processing delays at

the proposer's lead institution or its method of shipping does not excuse the late submission of a proposal.

C.1.2 Types of Proposing Institutions

See Appendix A, Section A.1.2 on Eligible Institutions.

C.1.3 Proposal Personnel

Every organization submitting a proposal in response to this NRA must designate a *single Principal Investigator (PI)* who will be responsible for the quality and direction of the entire proposed investigation and for the use of all awarded funds. Note that NASA does not accept the designation of a "Co-Principal Investigator;" there must be only one PI who is solely responsible for an investigation.

NASA strongly encourages proposers to identify only the most critically important personnel to aid in the execution of their proposals. Should such personnel be required, *Co-Investigators* (Co-I's) may be identified who are critical for the successful completion of an investigation through the contribution of unique expertise and/or capabilities, and who serve under the direction of the PI whether or not they receive compensation directly under the award. A Co-I must have a well-defined role in the investigation that is explicitly defined in the Management section of the proposal (see Section 5.3 below). In addition, for all proposals submitted in response to any of the Categories of Opportunity in this NRA, evidence of the commitment of a Co-I to participate in the proposed investigation is now required by way of a brief letter from him/her even if they are from the same institution as that of the PI (see Section 5.3 below).

There are two informal subcategories of Co-I's that a proposal may identify in its Management section (see Section 5.3 below), as appropriate:

A Co-I at the PI's institution may be designated as the *Science Co-I* or *Education Co-I* for those cases where the proposing institution does not permit that individual to formally serve as the PI as defined above (e.g., nontenured faculty, research associates, and/or postdoctoral personnel). In such a case, the Science/Education Co-I will be recognized by NASA to be in charge of the scientific or educational direction of the proposed work, although the formally designated PI is still held responsible for the overall direction of the effort and use of funds.

A senior, leading Co-I may be additionally designated as an *Institutional PI* if his/her institution is committed to make a major contribution to a proposal submitted by a PI from another institution, e.g., a substantial portion of an experimental investigation. (Note: The proposing (designated PI) institution will be expected to make all arrangements for funding proposal Co-I's residing at other institutions through an appropriate funding mechanism such as a subcontract, subgrant or a cooperative agreement. The proposal's designated PI is still held responsible by NASA for the overall scientific/educational direction of the proposed effort.)

As for Co-I's noted above, proposals submitted in response to this NRA must include a letter of commitment from each Co-I that describes in detail their specific, intended contribution to the investigation.

C.1.4 Proposal Evaluation

Although OSS/OEOP secures educational, scientific, or technical evaluations from appropriately qualified peers of the proposers, proposers are expected to provide sufficient detail to enable evaluation by these knowledgeable persons. The evaluation criteria for this NRA apply to all Categories of Opportunity in this NRA.

Evaluation Criteria for Selection

This section supersedes the Evaluation Factors sections presented in Appendix B.

Proposals submitted in response to this NASA Research Announcement will be prescreened to ensure that they meet the eligibility requirements described in Section A.1.1 and satisfy the Program Guidelines and Constraints outlined in Section A.2.1. Proposals not meeting these requirements, guidelines, and constraints will be returned to the proposers and not considered any further in the evaluation/selection process. Following this prescreening process, qualifying proposals will be judged on four criteria: *project significance and quality, project feasibility, prospects for institutional development, and adequacy of management approach*. The first two of these factors are the most important and will be worth more than each of the last two factors in the overall evaluation process. In order to ensure an equitable and thorough review, proposers are asked to organize their proposals to address these factors as follows:

- (1) **Project Significance and Quality (30%)** – A compelling argument that the project is actually worth doing. The proposal contains a carefully thought out approach and presents a clear case for the project’s intrinsic educational or scientific merit. Proposals will be expected to:
 - Clearly define a need or set of needs and describe how the project’s goals are related to addressing those needs.
 - Identify realistic, measurable outcomes that are expected to result from implementation of the project, discuss the importance of those outcomes, and show how the project will contribute to education and/or research and increase knowledge or understanding of NASA Space Science.
 - Clearly show how the project addresses and makes a substantive contribution to meeting the goals and objectives described in this NRA.
 - Demonstrate the potential of the proposed activity to serve as an effective educational or research model that can be exported to or adapted by similar educational institutions.
 - Contain an appropriate and thorough plan for evaluating the effectiveness and impact of the proposed project. The plan should present a coherent approach for evaluating the results of the proposed program and show how the proposed methods of evaluation are thorough, practical, and consistent with the goals, objectives, and outcomes of both the proposed project and this NRA.
 - Be based on approaches that reflect a basic knowledge and understanding of the “best educational” practices dealing with precollege education or the training of precollege teachers; developing science, mathematics, and technology curricula; delivering effective professional enhancement workshops; and using standards-based approaches to teaching/learning for incorporating space science-related topics into pre-college classrooms.

- (2) **Project Feasibility (30%)** – The proposal provides evidence that the project can actually be done for the requested funds, that the proposing team has the capability and experience to carry out the project, that appropriate facilities or institutional capabilities are available for accomplishing the work, and that appropriate commitments have been obtained from potential partners. Proposals will be expected to:
- Present a credible and effective approach for accomplishing the work and achieving the stated project goals and objectives on time and within budget.
 - Show that the qualifications, capabilities, and experience of the Principal Investigator and other key personnel are appropriate and adequate for successfully implementing the proposed project.
 - Demonstrate that all aspects of the proposed work can be done using available and/or requested financial resources, that the proposed costs are reasonable and realistic, and that the budget for each year is appropriate and clearly related to the tasks and activities that have been proposed.
 - Show that facilities, equipment, or institutional capabilities required for carrying out the work are available and accessible.
 - Document, where appropriate, partnerships or collaborations, showing how those collaborations contribute to achieving the proposed project's goals and objectives and will be sustained throughout the period of the award, and demonstrate how such collaborations extend and amplify the proposer's capabilities for carrying out the work.
- (3) **Prospects for Institutional Development (20%)** – The proposal clearly demonstrates that proposed activities will directly contribute to improving the institution's capabilities to carry out space science-related educational or research programs by building on and extending existing strengths, establishing new areas of capability and competence, improving faculty instructional or research capabilities, contributing to the development of new or improved courses, or providing new educational or research opportunities for students. Proposals must specifically address (and document) the relationship between the goals and objectives of the proposed activity and the long-term plans for academic and institutional development of the proposing institution and the prospects for sustainability of the proposed activity beyond the period of direct NASA support.
- (4) **Adequacy of Management Approach (20%)** - The management approach for carrying out the proposed work is sound. Clear responsibilities for each participant and clear lines of authority for managing resources and for overseeing implementation of the work are identified. Timelines and milestones for accomplishing project tasks are clearly defined and outlined. The proposal provides the assurance that the effort can be successfully carried through to completion on time and within budget.

C.1.5 Proposal Selection and Program Initiation

Recommendations for funding will be based on the results of peer evaluation by suitable panels of educators and scientists of each proposal's educational and scientific merits and the proposal's prospects for successfully addressing the stated goals of this announcement using the specific criteria presented in Section C.1.4 above. As indicated in the NRA Cover Letter, the Office of Space Science / Office of Equal Opportunity Minority University Education and Research Partnership Initiative in Space Science is new. OSS/OEOP plan to test the effectiveness of the

strategy outlined in this Announcement by sponsoring a variety of approaches to developing academic programs, enhancing the capabilities of students and faculty, and establishing education and research exchange programs and partnerships among a wide variety of institutions. Based on the submissions of proposals of adequate merit, NASA plans to deliberately select proposals of different scales with diverse approaches to implementing these concepts from different types of minority colleges and universities located in many regions of the country, and to evaluate the effectiveness of a broad range of approaches to meeting the goals of this announcement as a basis for possible follow-on activities. Such programmatic considerations will be an explicit part of the selection process.

Following peer evaluation, the cognizant OSS/OEOP staff will further review the top rated proposals against the programmatic objectives and financial resources available and will develop a recommendation for selection to the designated NASA Selecting Officials (identified in this NRA's Cover Letter). The Selecting Officials will make the final selections. In all cases, the Government's obligation to make awards under this NRA is contingent upon the availability of appropriated funds, as well as the receipt of proposals that NASA determines are acceptable for award.

Notification of selection decisions will be made according to the schedule contained in the Cover Letter. Debriefings by phone or mail of all reviewed but nonselected proposals will be provided on request within approximately five weeks following announcement of selections. Note that NASA reserves the right to offer selection of only a portion of a proposed investigation; in such a case the proposer will be given the opportunity to accept or decline the offer. Those recommended for selection will be informed of the recommended amount of their award and that their organization will be contacted by a NASA Procurement Office to arrange for the award. In all cases, awards are made to the proposing institution, not directly to the proposal's PI. No financial commitment on the part of NASA or the Government may be inferred from any communication, even if in writing, from the cognizant OSS/OEOP staff or Selecting Officials. Only a Grants/Contracting Officer can make financial commitments, obligations, or awards on behalf of the Agency and authorize the expenditure of funds.

Program Initiation Meeting

Selected proposers will be invited to a program initiation meeting at NASA Headquarters to be held thirty (30) to sixty (60) days after notification; the selectees will be informed in advance of the format of the meeting and information they will need to provide.

C.2 Notice of Intent (NOI) to Propose

In order to plan for a timely and efficient peer review process, *Notices of Intent* (NOI's) to propose are requested by the respective deadlines outlined in the Cover Letter in this NRA. The submission of a NOI is not a commitment to submit a proposal, nor is information contained therein considered binding on the submitter. To the extent known at the time of its submission, the NOI should briefly describe the approach likely to be proposed, identify a single Principal Investigator and his/her institution, and identify likely partnering institutions and Co-Investigators.

As described in the NRA Cover Letter, special attention is directed to the requirement for the electronic submission of both a *Notice of Intent to Propose* and the electronic submission of a combined *Cover Page/Proposal Summary*. It should be noted that, in addition to the electronically submitted cover page, a signed *Cover Page* must accompany the proposal itself to be submitted in hardcopy. [See Appendix C, Section C.5.3 for a description of the process for electronic submission.]

See the Cover letter for the World Wide Web site for submitting both the *Notice of Intent* and the *Cover Page/Proposal Summary*. Proposers without access to the Web or who experience difficulty in using this site may contact The Lunar and Planetary Institute for assistance (see the cover letter for information). The NOI Web site will request at least the following information:

- reference to this NRA by its alpha-numeric identifier (this may be included on the electronic form);
- the Categories of Opportunity A or B for which a proposal may be submitted;
- the Principal Investigator's name, physical mailing address, phone number, facsimile and E-mail address;
- the name(s), function definition(s), E-mail addresses, institution(s) of any Co-Investigator(s) known by the NOI due date;
- a descriptive title of the intended investigation; and
- a brief description of the project to be proposed.

A separate NOI must be submitted for each intended proposal. Note that this NOI may take the form of being the preliminary version of the proposal *Cover Page/Proposal Summary*; if so, the Web site will provide a password to the user for future use in updating this information for the final *Cover Page/Proposal Summary* as the deadline for submission of the final proposal approaches (see further discussion in [Section C.5.3](#)).

C.3 "Renewal" Proposals [Appendix B.(d)]

This section does not apply to this NRA.

C.4 Guidelines for International Participation [Appendix B.(l)]

Non-U.S. institutions and investigators working for non-U.S. institutions are not eligible to participate in this NRA.

C.5 Guidelines for Preparation of Proposals

C.5.1 Standard Default Formats

The standard, default formats for all proposals submitted in response to this NRA are as follows:

- Typewritten English text using an easily read font having <15 characters per inch on white, 8.5x11 inch paper (or A4 stock for non-U.S. proposals), in single or double column format with at least one inch (2.5 cm) margins.
- Double-sided printing preferred but not required.
- Bound only with metal staples to facilitate recycling (i.e., no cardboard or plastic covers, or permanent binders), with the original copy bound in a manner that allows easy disassembly should NASA need to make additional copies.

- No fold out pages, catalogues, annual reports, colored illustrations, or photographs unless critical for the unique display of important proposal data.
- No material can be submitted on any type of electronic media, CD-ROM's, disks, video or audiotapes, or reference to sites on the World Wide Web for material needed to complete or review the proposal.
- Use of only metric and standard astronomical and engineering units.
- Strict adherence to the fixed page limits given in Section C.5.2.

C.5.2 Checklist for Proposal Preparation and Submission

PRESUBMISSION ACTIVITIES

- _____ *Notice of Intent to Propose* - electronically submitted to the World Wide Web site and by the date given in the *Cover Letter* to this NRA (this Web site will be open for submissions starting approximately 20 days prior to the due date for the NOI).
- _____ *Cover Page/Proposal Summary* - electronically submitted to the World Wide Web site given in the *Cover Letter* to this NRA and according to the directions below, and in time to procure original signatures on a printed hard copy as required for submission with the copies of the proposal itself by the deadlines in the cover letter (this Web site will be open for submissions approximately 45 days prior to the due date for the proposals themselves).

All proposals are to include the following materials in the order and using the titles as given. Details for each item are given in the same order in Section C.5.3.

CONSTITUENT PARTS OF A PROPOSAL
(required and optional, in order of assembly)

Section	Page Limit
Cover Page and Proposal Summary	Printout of electronic submission
Table of Contents	1
Scientific/Technical/Educational Section (Main body of the proposal)	≤ 15**
Management Plan/Project Plan	≤ 4
Current and Pending Research or Education Support	As req'd
Appendices Budget Summary for Proposal (format in Appendix C) including explanatory pages. Budget Summary for partners/Co-I institutions (format Appendix D). Provide a separate form for each partner or Co-I institutions including an explanatory page for each. Curriculum Vitae (one page per key personnel) Workforce Staffing Plan for Key Personnel (format in Appendix D) Statement(s) of Commitments from Co-I's/or partners References	No page limit, but small size encouraged
Reprints/Pre-prints (optional)	≤ 2

** Number includes illustrations, tables, and figures.

SUBMISSION ACTIVITIES

- _____ *Cover Page/Proposal Summary* - print out final and complete version from specified Web site to secure the Principal Investigator and Authorizing Institution signatures, and to produce the required number of hard copies to be submitted (originally signed *Cover Page/Proposal Summary* to preface original of proposal).
- _____ Provide for delivery of the specified number of hard copies (10 plus signed original) of the proposal to the correct address by close of the normal business day on the specific Due Date (see the summary cover letter for submission date for the submission address).

C.5.3 Details of Proposal Contents

All proposals in response to this OSS/OEOP NRA must be assembled with the following parts (note that some are as required or optional) in the order listed. Proposals that omit any of their required parts will be returned without review. For convenience, each of the items below is cross-referenced to the corresponding part of Appendix B of this NRA. Note: Several parts of Appendix B are not cited but should also be considered for a complete understanding of all the policies and provisions for proposals solicited through this NRA.

- *Cover Page/Proposal Summary* [Appendix B.(c)(1) and (3)]

All proposals must be prefaced by an integrated *Cover Page/Proposal Summary* that contains important, required information (see below). This item is produced by first entering the requested information electronically through a World Wide Web site and then printing out this form by the proposer.

Note:

- (i) a point of contact is also identified for any proposer without access to the Web or who experiences difficulty in using the specified site;
- (ii) a sample of this Web form may be printed out at any time for preliminary inspection; and
- (iii) the only valid format for submission of this item is through the Web. The printed copy of the electronically submitted form is then used to obtain original signatures of the PI and an official from the proposing institution to submit with the original, paper copy of the proposal. In addition, reproductions of this original *Cover Page/Proposal Summary* are used to preface the required printed copies of the proposal.

Upon accessing the specified Web site, at a minimum the following information for the *Cover Page* will be requested:

- _ Alphanumeric identifier of this NRA and full name of the NASA Research Announcement (Note: these may already be included on the electronic form through use of a menu).
- _ Name of the Category of Opportunity within this NRA to which the proposal is directed.
- _ Name and full physical, institutional mailing address of the proposing Principal Investigator, telephone and facsimile numbers, and E-mail address. (Note: An open block for the PI signature and date will appear on the printed hard copy.)
- _ Full descriptive title of proposed investigation.
- _ Abbreviated title of proposed investigation (limited to 50 characters).
- _ List any non-NASA funding source(s) that the PI may hold that logically connects to the newly proposed work.
- _ Names, institutional affiliations, and E-mail addresses of any Co-Investigators (see definition of Personnel in Section C.1.3; also note that all listed Co-I's must also be functionally identified in the proposal (see Section C.5.3).
- _ The physical mailing address, telephone number, and E-mail address of the office of sponsored programs at the proposing institution.
- _ Institutional endorsement, including the name and title of the Authorizing Official, name of proposing institution. (Note: an open block for signature and date will be provided on the printed hard copy).
- _ Designation of the type of institution per the definitions in Section C.1.2 above and Appendix A.1.2.
- _ The budget costs for the proposed activities both by year and for the total proposed period of performance.

A block of space (limited to 2000 characters, including spaces, or about one-half page using the formats specified above) will be provided in the electronic *Cover Page/Proposal Summary* form for a self-contained *Proposal Summary* of the proposed activity. Note that the electronic site is configured to allow this submission by transfer from any standard word processing software. The *Summary* provides background and perspective to the interested reader and, therefore, must include the following information:

- _ A description of the key, central goals and objectives of the proposed effort in terms sufficient for a nonspecialist not familiar with the document to grasp its essence and a statement of methods proposed to accomplish those proposed objectives; and
- _ The perceived significance of the proposed work to NASA OSS missions, goals, and interests.

Special conditions and instructions concerning the Cover Page/Proposal Summary:

- 1) Changes (such as whiteout or strikethrough) to the printed *Cover Page/Proposal Summary* are not permitted. Any needed changes to the information submitted electronically may only be made by editing the electronic submission by following the instructions of the Web page, after which the final *Cover Page/Proposal Summary* is then printed in order to secure the necessary signatures.
- 2) The authorizing institutional signature on the *Cover Page* certifies that the proposing institution has read and is in compliance with the three required certifications printed in full in Section C.6 of this Appendix; therefore, it is not necessary to separately submit these certifications with the proposal.
- 3) Electronic submission of a *Cover Page/Proposal Summary* does not satisfy the deadline for proposal submission. The required number of proposal copies (see cover letter) must be received at the indicated address by the proposal due date.
- 4) NASA OSS is now publishing the names of the proposal, the PI, and the proposing institution, and the *Proposal Summary* of every selected investigation in a public database (e.g., see "Selected Investigations" on menu at Web site <http://space.science.nasa.gov/codesr/welcome.html>). Therefore, the *Summary* should not include proprietary information that precludes its unrestricted release (see also Appendix B, (a)(2) and (c)(2)).

- *Table of Contents*

A one page *Table of Contents* should follow the *Proposal Summary* that identifies each of the key parts of the proposal, as well as the subsections of the proposal's central *Scientific/Technical/Educational Section*. For ease of assembling the proposal, each of its sections may be individually numbered.

- *Scientific/Technical/Educational Section* [Appendix B.(c)(4), (c)(5), and (c)(6)]

This Section is the main body of a proposal and addresses the first three of the selection criteria described in Section C.1.4 above using not more than 15 pages of standard-sized text and illustrations, where each side of a sheet containing text or figures is considered a page. The prefatory materials in Section C.5 of this Appendix, a Table of Contents, and the personnel and budget materials noted below are not included in this page limit. Aside from the NOI and Cover Letter/Proposal Summary, which will be electronically submitted, all other sections of the

proposal should be prepared and submitted as described. Other electronic formatted materials or software of any kind (e.g., CD-ROM's, video, disks, or audiotapes) are not to be submitted.

The main body of a proposal should cover the following topics in the order given, all within the specified page limit:

- _ The objectives and expected significance of the proposed activities, including a complete description of any instruments or hardware proposed to carry out the research (note: see also the *Facilities and Equipment* section for the description of critical equipment needed for carrying out the proposed project);
- _ The perceived impact of the proposed work and, if the proposal is a direct extension of an existing NASA award, how the proposed work is expected to build on and otherwise extend the previous accomplishments to date;
- _ The educational or technical approach and methodology to be employed in implementing the project, including any special facilities of the proposing institution(s) and/or capabilities of the proposer(s) for carrying out the work;
- _ The relevance of the proposed work to past, present, and/or future NASA OSS programs and interests and to the specific objectives given in this NRA;
- _ An outline of the general plan of work, including anticipated key milestones for accomplishments and the management structure for the personnel involved; and
- _ A statement of the expected contribution by the PI and each Co-I identified on the proposal, whether or not they derive support from the proposed budget (note: Co-I's have either insignificant or unjustified roles will be considered a weakness for purposes of the evaluation of the proposal).

The *Scientific/Technical/Educational Section* may contain illustrations that amplify and demonstrate key points in the main text of the proposal. Any illustrations and figures must be of publication quality, of an easily viewed size, and have self-contained captions that do not contain critical information not provided elsewhere in the proposal.

- *A Management/Project Plan*

The Management/Project Plan (4 page limit) addressing the fourth of the selection criteria described in Section C.1.4 should demonstrate assignment of responsibilities, provide assurance that the proposed effort can be carried through to completion and demonstrate that the end-to-end scope of the proposed effort (including milestone schedules) is recognized and that ample time is allowed for achieving each step). [See Appendix C, Section 5.3., Appendix B, Sections (c)(4), (c)(5), and (c)(6)]

- *Current and Pending Support* [Appendix B.(c)(10)]

Information must be provided for all ongoing and pending projects and proposals that involve the proposing PI and any Co-I's who are either expected to perform a significant share of the proposed work (e.g., as a Education Co-I or as an Institutional PI (see section C.1.3 above)), or who are proposed to receive support through the proposal. Information is required for each of the two categories of support awards that may exist at the time of the proposal submission deadline, namely,

- a) Current Support (for any of the period that overlaps with the proposal being submitted to this NRA) and Pending Support (including the proposal to this NRA). For each of these categories, provide the following information for each such key individual on the proposal team as noted above:
- _ Title of award or project;
 - _ Program name (if appropriate) and sponsoring agency or institution (including point of contact);
 - _ Proposed period of performance and budget; and
 - _ Commitment by PI (or Co-I) in fractions of a full time Work Year (WY = 1880 hours).

In addition, provide the name of any other institution, including point of contact with telephone number, to which the proposal submitted to this NRA, or any part thereof, has been or will be submitted for consideration of funding. For such pending activity, the PI's must notify the point of contact listed in the Cover Letter for this NRA immediately of any successful proposals that are awarded anytime after the proposal submission date until the time of selections.

Final Report.

In order to assist OSS/OEOP in obtaining a coherent picture of the entire portfolio of supported education and public outreach efforts, a *Final Report* must be submitted before a new award for a follow-on activity will be granted to the same Principal Investigator. Note that directions for the submission of the *Annual Progress Reports* that are necessary for an annual funding allotment by a fixed deadline. Additional information about both reports will be provided at the program initiation meeting described in Section C.1.5.

• *Budget Summary and Details*

[Appendix B.(c)(8)]

A budget summary for the proposal in the standard NRA budget format, clearly describing the use of NASA funds requested through this solicitation, must be provided. Proposals must contain a *Budget Summary* (format given in Section C.6 of this Appendix) for each year of the proposed effort, as well as for the total period of performance, filled out in accordance with the following *Instructions for Budget Summary*. The Web site where this NRA is posted also has this form identified for downloading.

If a proposal is selected for award, failure to adequately address the provisions of the instructions for item 2.c (of the Budget Summary form) will require that NASA contact the proposing institution for the required information. Such activity may delay the award until the purchase is either justified as a direct charge for general purpose equipment or is budgeted as an indirect expense.

NASA is expected to be operating on the basis of full cost accounting as soon as possible, including all Civil Service salaries with overhead. In the interim period, proposals involving NASA and JPL employees as a Co-I should use the accounting method authorized at their institutions at the time proposals are due and for the entire proposed period of performance.

A budget plan may request funding for a period of up to three years. The proposal must explicitly demonstrate that the proposed work can actually be done using available and/or requested resources. Regardless of whether NASA funding is requested or not, the Budget Plan should demonstrate how all goods and services involved in the proposal are to be obtained, especially those items for which requested NASA funds are to be used. This plan should identify all

resources and sources of funding to be used to support the work, including specific grant funds, cost sharing arrangements with other institutions, no-cost contributions, and any other known or potential commitment of resources. If the proposed approach includes activities directly applicable to the project that are currently funded from a non-OSS NASA program (e.g., the NASA Space Grant Program or an effort currently supported by the NASA Minority University Research and Education Division), this source of support should be identified in the program as a contributing resource. It is the obligation of the proposer, in such a case, to fully inform and coordinate with the appropriate NASA program manager(s) or technical monitor(s) of the currently funded activities regarding their additional intended uses in support of funds requested under this NRA.

Any details in the proposal describing the amount of financial resources the institution will contribute to the project, such as contributions from non-Federal sources, institutional funds, or use of in-kind resources, may be considered cost sharing contributions. Cost sharing is encouraged in order to extend the reach of the institution's proposed project activities; however, cost sharing is not a requirement of this NRA. Any cost-sharing arrangements or other possible financial or in-kind contributions from other sources that could be used to enhance the effort to be undertaken with support requested under this NRA should be specifically identified. [See also Appendix C.5.3, Appendix B.(c)(8)]

Budget Summary for Partners or Co-I Institutions.

If a PI from a non-Government institution proposes to team with a Co-I from a U.S. Government institution (for this purpose, JPL is considered a NASA Center), then the institutional budget for that Government Co-I is to be included in the proposal's *Budget Details*, and the cost for this Government Co-I is to be listed on line 4, "Other Applicable Costs," of the *Budget Summary*. If the proposal is selected, NASA will execute an inter- or intra-Agency funds transfer, as appropriate, to cover the cost of the Government Co-I.

A proposing (PI) institution will be expected to make all arrangements for funding proposal Co-I's residing at other non-Government institutions through an appropriate funding mechanism (such as a subcontract, subgrant or a cooperative agreement.) NASA will not separately make awards to Co-I's at distributed institutions regardless of the cost impact to the PI proposal for the management of funding to collaborating institutions.

Complete a separate Proposal Budget Summary for each Partner or Co-I institution associated with the project. For each year of the project, a detailed budget summary form describing the Partner's/Co-I institution's use of NASA funds requested through this solicitation must be completed (see format in Appendix D). For programs involving interactions such as partnerships, collaborations, or exchanges with nonminority institutions, a maximum of up to twenty-five percent (25%) of the project's annual budget may be spent on activities undertaken by the nonminority institution(s).

Explanation of the Proposal Budget Summary.

In addition to the Budget Summary and in accordance with the Instructions for Budget Summary given in the Forms and Certifications Section of this Appendix, the proposing institution must append at the end of the proposal sufficient details in narrative format to allow a full understanding of the budget. Append details in narrative form for the budget summary for each Partner or Co-I institution as well.

- *Allowable Expenses*

In developing the budget for proposed project activities, the proposer may consider the following items in addition to other reasonable and realistic expenses required to carry out the work of the effort. Specifically, funds may be requested to:

- Hire new, adjunct, temporary, and/or visiting faculty, or to provide current faculty appropriate incentives (e.g., release time, student assistants) to revise courses/curriculum materials, or to develop new course activities and/or laboratory experiences.
- Support faculty/student participation in summer or academic year research activities as part of a partnership or exchange program.
- Support reasonable travel expenses for proposed professional enhancement activities.
- Provide a modest amount of support to purchase laboratory/instructional technology, or research equipment. Such purchases should not exceed fifteen percent (15%) of each year's total budget.
- Support modest costs for refurbishing or upgrading existing equipment. However, the acquisitions of large capital expenditures for hardware or costs for building improvements are not allowable (see Section A.2.1.)

- *Facilities and Equipment* [Appendix B.(c)(7)]

As appropriate, this section should describe any facilities (including any U.S. Government owned facilities) and/or major equipment critical for carrying out the proposed project that are already available or would need to be purchased in order to carry out the proposed investigation. In the latter case, such capital costs or expenditures are not allowable in this NRA and should not be entered in the required proposal Budget Summary and described in accompanying budget details.

- *Curriculum Vitae* [Appendix B.(c)(6)]

A summary of personnel or vitae composed of a one page curriculum vita for the Principal Investigator, each Co-Investigator, whether from the PI's or from other Co-I's institutions, and key project personnel must be provided. [See Appendix C, Sections 1.3, and Appendix B, Section (c)(6)]

- *Statement(s) of Commitment from Co-I's and/or Partners*

Every Co-I or partner identified as a participant in the proposal must submit a brief, signed statement of commitment that acknowledges his/her participation even if they are from the PI's own institution. Each statement should be addressed to the PI, may be a facsimile or E-mail, and must contain appropriate language detailing their financial or resource contribution, support, or outlining their specific activities/participation in the proposed project.

- *Workforce Staffing Plan for Key Personnel*

Workforce staffing plan for key personnel should be phased by fiscal year. The proposal must contain a single summary of personnel, commitment, and costs. In tabular form, the Workforce Table for Key Personnel should give the names and intended work commitment for the project PI, project manager, and for every Co-I of the proposed project both in time (rounded to the nearest 0.01 of a Work Year typically of 1880 hours) and salary (without addition of overhead or fees - rounded to the nearest \$1K) for each year of the proposed period of performance. [See Appendix D for the Workforce Staffing Plan format.]

- *Reprints/Preprints*

A maximum of two reprints and/or preprints for peer-reviewed publication that are considered critical to understanding the background of the proposal may be appended to the proposal. However, even if such items are appended, NASA's peer reviewers are directed to base their judgments of the merits of the proposal only on its *Scientific/Technical/Educational Section* and other related parts as described above in this section.

C.6 Forms and Certifications

The following pages contain:

- (i) the *Budget Summary* format and *Instructions for Budget Summary* (note: a reasonable facsimile may be generated by the proposer for submission or the electronic form may be downloaded from the Web site that contains this NRA); and
- (ii) copies of the three *Certifications* currently required by U.S. Code (note: these individual Certifications are included for reference only and should not be signed and returned; language is now included on the proposal *Cover Page* that confirms that these certification requirements are met once the printed copy of the *Cover Page* is signed by the Authorizing Institutional Representative and submitted with the proposal).

BUDGET SUMMARY for PROPOSAL

Total Period of Performance from (M/D/Y) _____ to _____

Initial Year from (M/D/Y) _____ to _____

Total Amount Requested: _____

	FY1	FY2	FY3	ROW
TOTALS				
1. <u>Direct Labor</u> (salaries, wages, and fringe benefits)	_____	_____	_____	_____
2. <u>Other Direct Costs:</u>				
a. Partner/Co-I Institution#1	_____	_____	_____	_____
Partner/Co-I Institution#2	_____	_____	_____	_____
Partner/Co-I Institution#3	_____	_____	_____	_____
b. Consultants	_____	_____	_____	_____
c. Equipment	_____	_____	_____	_____
d. Supplies	_____	_____	_____	_____
e. Travel	_____	_____	_____	_____
f. Other (specify)	_____	_____	_____	_____
3. <u>Facilities and Administrative Costs</u>	_____	_____	_____	_____
4. <u>Other Applicable Costs:</u>	_____	_____	_____	_____
5. <u>SUBTOTAL--Estimated Costs</u>	_____	_____	_____	_____
6. <u>Less Proposed Cost Sharing</u> (if any)	_____	_____	_____	_____
7. TOTAL ESTIMATED COSTS	_____	_____	_____	_____

INSTRUCTIONS FOR BUDGET SUMMARY for PROPOSAL

- Provide a complete Budget Summary for the total as well as each individual year of the proposed period of performance.
 - Provide, as attachments, detailed computations of all estimates in each cost category with narratives as required to fully explain each proposed cost as follows.
1. **Direct Labor (salaries, wages, and fringe benefits):** Attachments should list the number and titles of personnel, amounts of time to be devoted to the grant, and rates of pay.
 2. **Other Direct Costs:**
 - a. **Partners/Co-I institutions:** Attachments should fully describe the scope of the work involving the subcontract, subgrant or cooperative agreement, estimated amount, recipient (if known), and the reason for the work. Enter the annual totals on this budget summary page (Appendix C). In addition, for each year of the project, complete a more detailed budget summary form describing the Partner's/Co-I institution's use of NASA funds that the proposer requested through this solicitation (see format in Appendix D).
 - b. **Consultants:** Identify consultants to be used, why they are necessary, the time (number of days) they will spend on the project, and quoted daily rates of pay. State whether the consultant has been compensated at the quoted rate for similar services performed in connection with Government contracts.
 - c. **Equipment:** List separately. Any equipment purchase requested to be made as a direct charge under this award must include the equipment description and how it will be used in the conduct of the basic activities proposed. The acquisitions of large capital expenditures for hardware or costs for building improvements are not allowable. Funds may be used to provide a modest amount of support to purchase laboratory/instructional technology, or research equipment or modest costs for refurbishing or upgrading existing equipment. Such purchases should not exceed fifteen percent (15%) of each year's total budget.
 - d. **Supplies:** Provide general categories of needed supplies, the method of acquisition, and the estimated cost.
 - e. **Travel and Related Costs:** Describe the purpose of the proposed travel in relation to the grant and provide the basis of estimate, including information on destination, number of trips, and number of travelers where known.
 - f. **Other:** Enter the total of direct costs not covered by 2a through 2e. Attach an itemized list explaining the need for each item and the basis for the estimate.
 3. **Facilities and Administrative (F&A) Costs:** Identify F&A cost rate(s) and base(s) as approved by the cognizant Federal agency, including the effective period of the rate. Provide the name, address, and telephone number of the Federal agency official having cognizance. If unapproved rates are used, explain why, and include the computational basis for the indirect expense pool and corresponding allocation base for each rate.
 4. **Other Applicable Costs:** Enter total explaining the need for each item.
 5. **Subtotal-Estimated Costs:** Enter the sum of items 1 through 4.
 6. **Less Proposed Cost Sharing (if any):** Enter any amount proposed. If cost sharing is based on specific cost items, identify each item and amount in an attachment.
 7. **Total Estimated Costs:** Enter the total after subtracting items 6 and 7b from item 5.

**Certification Regarding Debarment, Suspension, and
Other Responsibility Matters**

This certification is required by the regulations implementing Executive Order 12549, Debarment and Suspension, 34 CFR Part 85, Section 85.510, Participant's responsibilities. The regulations were published as Part VII of the May 26, 1988 Federal Register (pages 19160-19211).

2. The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:
 3. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
 4. Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
 5. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification; and
 6. Have not within three-year period preceding this application/proposal had one or more public transactions (Federal, State, or local) terminated for cause or default.
- (2) Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

Certification Regarding Lobbying

- (1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- (2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
- (3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000, and not more than \$100,000 for each such failure.

**Certification of Compliance with the NASA Regulations Pursuant to Nondiscrimination in
Federally Assisted Programs**

The (*Institution, corporation, firm, or other organization on whose behalf this assurance is signed, hereinafter called "Applicant "*) hereby agrees that it will comply with Title VI of the Civil Rights Act of 1964 (P.L. 88-352), Title IX of the Education Amendments of 1962 (20 U.S.C. 1680 et seq.), Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), and the Age Discrimination Act of 1975 (42 U.S.C. 16101 et seq.), and all requirements imposed by or pursuant to the Regulation of the National Aeronautics and Space Administration (14 CFR Part 1250) (hereinafter called "NASA") issued pursuant to these laws, to the end that in accordance with these laws and regulations, no person in the United States shall, on the basis of race, color, national origin, sex, handicapped condition, or age be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity for which the Applicant receives federal financial assistance from NASA; and hereby give assurance that it will immediately take any measure necessary to effectuate this agreement.

If any real property or structure thereon is provided or improved with the aid of federal financial assistance extended to the Applicant by NASA, this assurance shall obligate the Applicant, or in the case of any transfer of such property, any transferee, for the period during which the real property or structure is used for a purpose for which the federal financial assistance is extended or for another purpose involving the provision of similar services or benefits. If any personal property is so provided, this assurance shall obligate the Applicant for the period during which the federal financial assistance is extended to it by NASA.

This assurance is given in consideration of and for the purpose of obtaining any and all federal grants, loans, contracts, property, discounts, or other federal financial assistance extended after the date hereof to the Applicant by NASA, including installment payments after such date on account of applications for federal financial assistance which were approved before such date. The Applicant recognized and agrees that such federal financial assistance will be extended in reliance on the representations and agreements made in this assurance, and that the United States shall have the right to seek judicial enforcement of this assurance. This assurance is binding on the Applicant, its successors, transferees, and assignees, and the person or persons whose signatures appear below are authorized to sign on behalf of the Applicant.

Budget Summary for Research Proposal

For (check one):

___ Total Period of Performance from (M/D/Y) _____ to _____

___ For Year ___ of ___ from (M/D/Y) _____ to _____

	A	NASA USE ONLY	
		B	C
1. <u>Direct Labor</u> (salaries, wages, and fringe benefits)	_____	_____	_____
2. <u>Other Direct Costs</u> :			
a. Subcontracts	_____	_____	_____
b. Consultants	_____	_____	_____
c. Equipment	_____	_____	_____
d. Supplies	_____	_____	_____
e. Travel	_____	_____	_____
f. Other	_____	_____	_____
3. <u>Facilities and Administrative Costs</u>	_____	_____	_____
4. <u>Other Applicable Costs</u> :	_____	_____	_____
5. <u>SUBTOTAL--Estimated Costs</u>	_____	_____	_____
6. <u>Less Proposed Cost Sharing</u> (if any)	_____	_____	_____
7. <u>Carryover Funds</u> (if any)			
a. Anticipated amount : _____			
b. Amount used to reduce budget	_____	_____	_____
8. <u>Total Estimated Costs</u>	_____	_____	XXXXXXXX
9. APPROVED BUDGET	XXXXXXX	XXXXXXX	_____

INSTRUCTIONS FOR BUDGET SUMMARY

- Provide a complete Budget Summary (which may include an optional Education/Public Outreach effort) for the total as well as each individual year of the proposed period of performance.
- Enter the proposed estimated costs in Column A (Columns B & C for NASA use only).
- Provide, as attachments, detailed computations of all estimates in each cost category with narratives as required to fully explain each proposed cost as follows.

1. Direct Labor (salaries, wages, and fringe benefits): Attachments should list the number and titles of personnel, amounts of time to be devoted to the grant, and rates of pay.
2. Other Direct Costs:
 - a. Subcontracts: Attachments should describe the work to be subcontracted, estimated amount, recipient (if known), and the reason for subcontracting.
 - b. Consultants: Identify consultants to be used, why they are necessary, the time they will spend on the project, and rates of pay (not to exceed the equivalent of the daily rate for Level IV of the Executive Schedule, exclusive of expenses and indirect costs).
 - c. Equipment: List separately. Explain the need for items costing more than \$5,000. Describe basis for estimated cost. General purpose equipment is not allowable as a direct cost unless specifically approved by the NASA Grant Officer. Any equipment purchase requested to be made as a direct charge under this award must include the equipment description, how it will be used in the conduct of the basic research proposed and why it cannot be purchased with indirect funds.
 - d. Supplies: Provide general categories of needed supplies, the method of acquisition, and the estimated cost.
 - e. Travel: Describe the purpose of the proposed travel in relation to the grant and provide the basis of estimate, including information on destination and number of travelers where known.
 - f. Other: Enter the total of direct costs not covered by 2a through 2e. Attach an itemized list explaining the need for each item and the basis for the estimate.
3. Facilities and Administrative (F&A) Costs: Identify F&A cost rate(s) and base(s) as approved by the cognizant Federal agency, including the effective period of the rate. Provide the name, address, and telephone number of the Federal agency official having cognizance. If unapproved rates are used, explain why, and include the computational basis for the indirect expense pool and corresponding allocation base for each rate.
4. Other Applicable Costs: Enter total explaining the need for each item.
5. Subtotal-Estimated Costs: Enter the sum of items 1 through 4.
6. Less Proposed Cost Sharing (if any): Enter any amount proposed. If cost sharing is based on specific cost items, identify each item and amount in an attachment.
7. Carryover Funds (if any): Enter the dollar amount of any funds expected to be available for carryover from the prior budget period. Identify how the funds will be used if they are not used to reduce the budget. NASA officials will decide whether to use all or part of the anticipated carryover to reduce the budget (not applicable to 2nd-year and subsequent-year budgets submitted for award of a multiple year award).
 - Total Estimated Costs: Enter the total after subtracting items 6 and 7b from item 5.

APPENDIX D

MISCELLANEOUS FORMS

BUDGET SUMMARY for PARTNERS/Co-I INSTITUTIONS

(Use this format to complete a separate budget summary page for each year of the project.)

Name of Partner or Co-Investigator Institution _____

Total Amount Requested: _____

From (M/D/Y) _____ to _____ (M/D/Y)

	FY1	FY2	FY3	ROW
TOTALS				
1. <u>Direct Labor</u> (salaries, wages, and fringe benefits)	_____	_____	_____	_____
2. <u>Other Direct Costs</u> :				
a. Subcontracts	_____	_____	_____	_____
b. Consultants	_____	_____	_____	_____
c. Equipment	_____	_____	_____	_____
d. Supplies	_____	_____	_____	_____
e. Travel	_____	_____	_____	_____
f. Other (specify)	_____	_____	_____	_____
3. <u>Facilities and Administrative Costs</u>	_____	_____	_____	_____
4. <u>Other Applicable Costs</u> :	_____	_____	_____	_____
5. <u>SUBTOTAL--Estimated Costs</u>	_____	_____	_____	_____
6. <u>Less Proposed Cost Sharing</u> (if any)	_____	_____	_____	_____
7. TOTAL ESTIMATED COSTS	_____	_____	_____	_____

**INSTRUCTIONS FOR BUDGET SUMMARY for
PARTNERS/Co-I INSTITUTIONS**

- Provide a complete Budget Summary for the total as well as each individual year of the proposed period of performance by Partner/Co-I institution.
 - Provide, as attachments, detailed computations of all estimates in each cost category with narratives as required to fully explain each proposed cost as follows.
1. Direct Labor (salaries, wages, and fringe benefits): Attachments should list the number and titles of personnel, amounts of time to be devoted to the grant, and rates of pay.
 2. Other Direct Costs:
 - a. Partners/Co-I institutions: For each year of the project, complete a more detailed budget summary form describing the Partner's/Co-I institution's use of NASA funds that the proposer requested through this solicitation.
 - b. Consultants: Identify consultants to be used, why they are necessary, the time (number of days) they will spend on the project, and quoted daily rates of pay. State whether the consultant has been compensated at the quoted rate for similar services performed in connection with Government contracts.
 - c. Equipment: List separately. Any equipment purchase requested to be made and how it will be used in the conduct of the basic activities proposed. The acquisitions of large capital expenditures for hardware or costs for building improvements are not allowable. Funds may be used to provide a modest amount of support to purchase laboratory/instructional technology, or research equipment or modest costs for refurbishing or upgrading existing equipment. Such purchases should not exceed fifteen percent (15%) of each year's total budget.
 - d. Supplies: Provide general categories of needed supplies, the method of acquisition, and the estimated cost.
 - e. Travel and Related Costs: Describe the purpose of the proposed travel in relation to the grant and provide the basis of estimate, including information on destination, number of trips, and number of travelers where known.
 - f. Other: Enter the total of direct costs not covered by 2a through 2e. Attach an itemized list explaining the need for each item and the basis for the estimate.
 3. Facilities and Administrative (F&A) Costs: Identify F&A cost rate(s) and base(s) as approved by the cognizant Federal agency, including the effective period of the rate. Provide the name, address, and telephone number of the Federal agency official having cognizance. If unapproved rates are used, explain why, and include the computational basis for the indirect expense pool and corresponding allocation base for each rate.
 4. Other Applicable Costs: Enter total explaining the need for each item.
 5. Subtotal-Estimated Costs: Enter the sum of items 1 through 4.
 6. Less Proposed Cost Sharing (if any): Enter any amount proposed. If cost sharing is based on specific cost items, identify each item and amount in an attachment.
 7. Total Estimated Costs: Enter the total after subtracting items 6 from item 5.

WORKFORCE TABLE FOR KEY PERSONNEL

(Percent Time Committed/Direct Costs)

Key Project Personnel	FY1	FY2	FY3
PI (% time)			
PI (direct costs)			
Proj Manager (% time)			
Proj Manager (direct costs)			
Other (specify)			